Attachment 1

510(k) Summary

OCT 2 6 2012

Regulatory Authority

Safe Medical Devices Act of 1990, 21 CFR 807.92

Submitter Information

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Summary Date:	October 24, 2012

Name and Classification

Common Name:	Anal Insert
Proprietary Name:	Renew Insert
Classification Name:	Gastrointestinal tubes and accessories
Product Code:	PBP
Regulation Number:	876.5980
Class:	II

Predicate Devices

The Renew Insert ("Insert") has the same intended use and function as commercially available medical devices:

a) Procon2; Incontinent Control Device Inc. (#K042431)

Intended Use

The Renew Insert is indicated for the management of accidental bowel leakage due to bowel incontinence. The Renew Insert is designed for self-insertion to seal and help prevent the involuntary leakage of stool from the rectum.

Description of Device

The Renew Insert is a simple, easy to use device consisting of two components: a soft silicone insert and a plastic fingertip applicator. The Insert is soft and easily deformable, making it safe and comfortable to use. The applicator is flexible and is preassembled inside the Insert and does not come in contact with the anal canal. Renew Inserts are available in two sizes, Regular and Large to accommodate a range of anatomies and incontinence severities. Users are instructed to start with the Regular size and move to the Large size if they experience an inadvertent loss of the Insert or stool leakage around the Insert. The device is provided preassembled and non-sterile in individual, single-use blister packs.

Summary of Technological Characteristics

The Renew Insert is self-inserted by the user through the anus into the anal canal. The top disk of the Insert rests against the bottom of the rectum to help prevent bowel leakage. The elastic stem of the Insert spans the anal canal and the bottom disk keeps the Insert in place by resting against the outer part of the anus. The removable fingertip applicator is flexible to allow easy insertion of the Insert. The insert is naturally expelled with voluntary bowel movement, or if desired, can be manually removed by the user.

Performance Testing

The Renew Insert has been verified for performance and functionality and tested to assure conformance to the requirements for its intended use.

The following performance tests were performed on the Renew Insert and its packaging:

- Tensile testing
- Detachment testing
- Puncture testing
- Buckling testing
- Bending testing
- Package integrity testing

Biocompatibility Testing

The biocompatibility of the Renew Insert was assessed in accordance with ISO 10993-1– *Biological evaluation of medical devices, Part 1 – Evaluation and tests within a risk management process.*

The biocompatibility tests listed below were conducted on the Renew Insert in accordance with the provisions of the FDA GLP regulations 21 CFR Part 58.

- Cytotoxicity
- Sensitization
- Irritation
- Rectal Irritation with Histology
- Systemic Toxicity
- Genotoxicity

The biocompatibility test results confirmed that the Renew Insert is non-cytotoxic, non-sensitizing, non-irritating, non-toxic, and non-mutagenic when evaluated under the respective test conditions described in ISO 10993.

Usability Evaluation

User assessment evaluations were conducted by consumer panelists under actual use conditions to verify ease of use. On a 5 point scale, overall satisfaction was rated a 4.7. The users were able to use the Renew Insert without difficulty. Usability testing demonstrated the Renew Insert performs as designed and intended.

Clinical Studies

Pilot and pivotal clinical studies were conducted in Europe and in the United States to demonstrate the tolerability, safety and effectiveness of the Renew Insert. Users were required to follow the instructions provided, be capable of self-inserting the Renew Insert during the study, and complete daily diaries to record their episodes of accidental bowel leakage.

A pilot trial was conducted in the US with 22 subjects. These subjects rated the ease of insertion as 9.13 using a scale of 1-10.

Pivotal Study Summary

Renew Medical conducted a multi-center, prospective, open label, single-arm, non-randomized pivotal study designed to establish the safety, effectiveness, and tolerability of the Renew Insert in subjects with moderate-to-severe bowel incontinence (defined as having a Wexner score greater than 12). Three (3) clinical sites participated in the US pivotal trial, enrolling a total of ninety-seven (97) subjects. The trial consisted of a 4-week baseline evaluation period, a 12-week treatment period and a 4-week return to baseline period.

For effectiveness, changes to accidental bowel leakage (ABL) were measured by the following two endpoints:

- reduction in ABL frequency (by comparing treatment results to pre-treatment results from the Baseline Period); and
- reduction in post-treatment Wexner scores [by comparing post-treatment Wexner scores to pre-treatment (end of Baseline Period) Wexner scores].

The two safety endpoints of the study included:

- absence of Insert-related serious adverse events (primary); and
- absence of any serious irritation of the anal canal or lower rectal mucosa from the use of the Insert during the study period (secondary).

Analysis Cohorts

The Baseline Period was included in the study design to establish the severity of each subject's baseline bowel incontinence (BI) condition, and to establish the frequency and severity of ABL for each subject. At the end of 4 weeks, subjects who continued to meet inclusion criteria were enrolled in the Treatment Period.

All subjects enrolled in the Treatment Period had at least one exposure to the Insert. Therefore, the Intent-to-Treat ("ITT") cohort and the Safety Cohort included the same group of subjects: all subjects who used the Renew Insert at least once during the Treatment Period of the study.

The primary cohort for the effectiveness analyses was the Modified Intent-To-Treat ("Modified ITT") Cohort. Subjects were getting acclimated to the Insert during the first few days of use and tried different sizes of Inserts (regular or large) for comfort and effectiveness. Therefore, the Modified ITT Cohort included all subjects who completed at least one week of Insert use during the 12-week Treatment Period.

Subject Disposition and Demographics

Ninety-seven (97) subjects enrolled in the study. Six (6) of the 97 enrolled subjects discontinued participation during the pre-treatment Baseline Period; 4 subjects did not meeting eligibility criteria and 2 subjects found the protocol too demanding.

Ninety-one (91) subjects entered the Treatment Period. Of these 91 subjects, 90.1% were female, with a mean age of 68.6 years (range from 33.9 to 88.9 years).

These 91 treated subjects were considered as the "ITT Cohort" for the analysis of the safety endpoints. Of the 91 subjects entering the treatment phase, 6 subjects discontinued study participation before completing week 1. Reasons for discontinuation included: 2 found the protocol too demanding, 2 subjects with pre-existing hemorrhoids made Insert use uncomfortable, and 2 subjects experienced loss of the Renew Insert during urination or from excess anal mucous.

As stated previously, the Modified ITT Cohort included all subjects who completed at least one week of Insert use during the 12-week Treatment Period. The Modified ITT group was a net population of 85 subjects (as the 6 subjects who withdrew during week 1 were excluded). Effectiveness results are reported on this cohort of subjects.

Effectiveness Analysis Results: Summary of ABL Study Endpoints

Reduction in ABL was analyzed on the 85 subjects in the Modified ITT group.

During the pre-treatment Baseline Period, ABL frequency for the Modified ITT cohorts was about 8 ABL episodes per week (daily mean of 1.12 ± SD 0.849 / median 0.89 per day). After treatment with Renew Inserts, ABL was reduced to about 1 ABL episode per week. The Modified ITT had a daily mean of 0.29 ±SD 0.376 / median 0.17, and a median ABL reduction of 81.8% as compared to the Baseline Period (Table 1).

Table 1. Reduction in ABL Frequency, Modified ITT Cohort

			ABL Results for Modified ITT Cohort	
Parameter	**Statistic**		**Result (Daily)**	**% Change from End of Baseline**
Total Subjects	N		85	
BASELINE PERIOD	MEAN +/- SD MEDIAN (Q1, Q3) (MIN, MAX)		1.13 +/- 0.849 **0.89** (0.54, 1.54) (0.14, 3.93)	
Total Subjects	N		85	
TREATMENT PERIOD	MEAN +/- SD MEDIAN (Q1, Q3) (MIN, MAX) P VALUE (U=0)		0.29 +/- 0.376 0.17 (0.05, 0.37) (0.00, 2.44) <0.001NP	-71.4 +/- 29.879 **-81.8** (-91.7, -60.3) (-100, 44.75) <0.001 NP

NP = Non-parametric test

Effectiveness Analysis; Summary of Wexner Score Study Endpoints

Reduction in Wexner Score was analyzed on 77 subjects in the Modified ITT group who had both a pre-treatment and post-treatment Wexner score. In the Wexner scale, full continence is a Wexner score of zero (0) and full incontinence is a Wexner score of 20. The median Wexner Score before treatment with Renew Inserts was 16.0, whereas, the median post-treatment Wexner score was 11.0. There was a 29.4% median reduction in the Wexner score, as shown in Table 2.

Table 2. Reduction in Wexner Score, Modified ITT Cohort

		Modified ITT Cohort	
Parameter	**Statistic**	**Result**	**% Change from end of Baseline**
Total Subjects	N	85	
End of BASELINE PERIOD	MEAN +/- SD MEDIAN (Q1, Q3) (MIN, MAX)	16.2 +/- 2.10 16.0 (15.0, 18.0) (12.0, 20.0) <0.001 NP	
Total Subjects	N	77	

End of TREATMENT PERIOD	MEAN +/- SD	10.9 +/- 4.36	-32.4 +/- 25.77
	MEDIAN	11.0	**-29.4**
	(Q1, Q3)	(8.0, 14.0)	(-46.2, -13.3)
	(MIN, MAX)	(0.0, 19.0)	(-100, 18.8)
		<0.001 NP	<0.001 NP

NP = Non-parametric test

Safety Analysis

Safety was evaluated on any subject who used at least one (1) Renew Insert. Over half of the subjects experienced some adverse events (AE), with 64.6% of the events assessed by the investigators as *'probable'* or *'possible'* related to the use of the Insert. There were no events rated as severe, nor were there any reported serious, unanticipated adverse events. Almost all (98.7%) of these possible adverse events were rated as 'mild'. Table 3 summarizes the most frequently reported adverse events by severity.

Due to the nature of Accidental Bowel Leakage (ABL), the anorectal area is particularly sensitive and irritated due to frequent stool discharge. Anorectal events were the most frequent, 'probable/possible' related AEs among all treated subjects. Of these, the sensation of urge was reported by 26.4% of subjects and irritation reported by 13.2% of subjects.

Table 3. Summary of "Possible or Probable" (Insert) Related Adverse Event Types, Rated Severity and Frequency in the Safety Cohort (N=91)

	Severity of AE - (%)			Subjects
	Mild	**Moderate**	**Severe**	**(%)**
% of Subjects with Possible/Probable Related Adverse Event	**(48.4%)**	**(2.2%)**	**(0.0%)**	**(50.5%)**
Anorectal (All)	**(35.2%)**	**(2.2%)**	**(0.0%)**	**(37.4%)**
Urge	(25.3%)	(1.1%)	(0.0%)	(26.4%)
Irritation	(13.2%)	(0.0%)	(0.0%)	(13.2%)
GI Disorders (all)	**(11.0%)**	**(0.0%)**	**(0.0%)**	**(11.0%)**
Discomfort	(4.4%)	(0.0%)	(0.0%)	(4.4%)
Gas	(3.3%)	(0.0%)	(0.0%)	(3.3%)
Hemorrhoids (All)	**(4.4%)**	**(1.1%)**	**(0.0%)**	**(5.5%)**

Note: At each level of summation, subjects are counted only once. Subjects experiencing adverse events of more than one severity are summarized according to the maximum severity experienced over all episodes of an adverse event.

In addition to the above adverse events, Insert displacement was also experienced and reported as a device-related event (see Table 4). Displacement of the Insert is when the lower (bottom) disk of the Insert becomes temporarily displaced and moves upward into the anus. Two subjects reported 60.3% of all displacement events; one subject had a pre-existing anal sphincter tear and another subject experienced displacement after strenuous physical exercise. Instances of displacement were predominately resolved by natural expulsion during subsequent bowel movements.

Table 4. Device Related Event: Insert Displacement

	Severity of Displacement - N (%)			Subjects
	Mild	Moderate	Severe	N (%)
Subjects Reporting Displacement AE	**21 (23.9%)**	**(0.0%)**	**(0.0%)**	**21 (23.9%)**
Number of Displacement Events	(31.4%)	(0.0%)	(0.0%)	(31.4%)

An additional safety endpoint of the study was absence of any serious irritation of the anal canal or lower rectal mucosa. Pre-treatment and end of treatment anal canal and lower rectal mucosa evaluations (digital rectal examinations and anoscopies) were performed in 77 subjects. [Eight subjects could not or would not come in to have an end of treatment rectal exam.]

End of treatment anal canal and lower rectal mucosa evaluations showed normal digital rectal exams in 100% of the subjects. Anoscopic rectal exam results were normal in 97.4% of subjects, and 2.6% of the treated subjects were found with abnormal exams, and determined not Insert-related.

Overall satisfaction among the majority of Insert users was high and 91.4% of the subjects rated overall experience and ease of use as 9.5 (median) on a 10-point scale.

Overall, the clinical evaluation pivotal study demonstrated that the Renew Insert is comfortable to wear, highly effective, and offers an easy to use device for managing ABL. In the modified ITT treatment group, clinical results demonstrate a median ABL reduction of 81.8%, and a median reduction of 29.4% in the Wexner score. Adverse events reported were predominantly mild in nature, with no reported severe, serious, or unanticipated adverse events. The Renew Insert performs as intended to reduce the frequency of, and help prevent accidental bowel leakage, and is safe and effective for its intended use.

Conclusion

Design verification and validation testing confirmed that no new questions of safety or effectiveness were identified during testing. Performance testing and clinical studies demonstrated that the Renew Insert is easy to use, performs as intended to reduce the frequency of accidental bowel leakage, and is safe and effective for its intended use.

The Renew Insert is substantially equivalent in intended uses, technological characteristics, and principles of operation to the Procon2 device cleared under the Federal Food, Drug and Cosmetic Act. The minor technological differences between the Renew Insert and its predicate devices raise no new issues of safety or effectiveness, and is, therefore, substantially equivalent.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Room –WO66-G609
Silver Spring, MD 20993-0002

Ms. Victoria Mackinnon
Sr. Director Regulatory/Clinical/Quality Assurance
Renew Medical, Inc.
532 Emerson Street
PALO ALTO CA 94301

OCT 26 2012

Re: K122003
Trade/Device Name: Renew Insert
Regulation Number: 21 CFR§ 876.5980
Regulation Name: Gastrointestinal tube and accessories
Regulatory Class: II
Product Code: PBP
Dated: September 26, 2012
Received: September 27, 2012

Dear Ms. Mackinnon:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical

device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucm115809.htm for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,

Benjamin R. Fisher, Ph.D.
Director
Division of Reproductive, Gastro-Renal,
and Urological Devices
Office of Device Evaluation
Center for Devices and Radiological Health

Enclosure

Attachment 2

Indications for Use

Indications for Use

510(k) Number: K122003

Device Name: Renew Insert

Indications for Use:

The Renew Insert is indicated for the management of accidental bowel leakage due to bowel incontinence. The Renew Insert is designed for self-insertion to seal and help prevent the involuntary leakage of stool from the rectum.

Prescription Use __√__ and/or Over-The-Counter Use ____
(Part 21 CFR 801 Subpart D) (21 CFR 807 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE - CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

(Division Sign-Off)
Division of Reproductive, Gastro-Renal, and Urological Devices
510(k) Number K122003